

Service-Based Enumeration

FINAL REPORT

This evaluation reports the results of research and analysis undertaken by the U.S. Census Bureau. It is part of a broad program, the Census 2000 Testing, Experimentation, and Evaluation (TXE) Program, designed to assess Census 2000 and to inform 2010 Census planning. Findings from the Census 2000 TXE Program reports are integrated into topic reports that provide context and background for broader interpretation of results.

Tracey McNally
Decennial Statistical
Studies Division

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EXECUTIVE SUMMARY

The goal of Service-Based Enumeration is to provide people without conventional housing an opportunity to be included in the census. We developed a specialized operation to enumerate selected service locations that serve people without conventional housing. It is important to note that the Census 2000 count of the Service-Based Enumeration population does not represent a complete count of people experiencing homelessness.

In the 1995 Census Test, we enumerated people at soup kitchens to test procedures for enumerating people without conventional housing. In September of 1996, we conducted a small-scale test in New York City to simplify the soup kitchen procedures and adapt them to mobile food van enumeration. We expanded the list of enumeration sites in Census 2000 Dress Rehearsal to include targeted non-sheltered outdoor locations.

Census 2000 Operational Procedures:

- We conducted an advance visit to Service-Based Enumeration locations several weeks before the enumeration to explain Census 2000 and to verify administrative information.
- On March 27, 2000 we enumerated people at **emergency shelters**. A separate Individual Census Report was used to enumerate each person, including children. We gave every sixth person a long form questionnaire to complete. Respondents were asked to complete the questionnaire and return it to the enumerator in a sealed envelope.
- On March 28, 2000, we enumerated people at **soup kitchens** during the meal that served the largest number of clients. Enumerators were instructed to interview each person using the Individual Census Questionnaire. A separate Individual Census Questionnaire was used to enumerate each person, including children. Every sixth person was enumerated on a long form questionnaire.
- On the evening of March 28, 2000, we also conducted an enumeration at **regularly scheduled mobile food vans**. Enumerators were instructed to interview each person using the Individual Census Questionnaire. A separate Individual Census Questionnaire was used to enumerate each person, including children. There was no long-form sample.
- On March 29, 2000 we enumerated people at **targeted nonsheltered outdoor locations**. Through partnerships, targeted nonsheltered outdoor locations should have had a contact person or gatekeeper who was familiar with the location and accompanied the enumerators during the enumeration. Enumerators were instructed to list each person on a Group Quarters Listing Sheet, hand the respondent a Privacy Act notice, and interview each person using the Individual Census Report. A separate Individual Census Report was used to enumerate each person, including children. There was no long-form sample.

People on Be Counted forms who marked the "No Address on April 1, 2000" box or indicated they were homeless in the address section also were included in the Service-Based Enumeration universe.

Because the Service-Based Enumeration only accounted for people at these facilities on the day of enumeration, we planned to apply multiplicity estimation to account for people who did not use them on the days of the enumeration. Due to data quality concerns a decision was made not to correct the count of persons actually enumerated using the multiplicity estimation.

Census 2000 Results:

There were 14,817 Service-Based Enumeration sites in the Census 2000. More than one-half (51 percent) of the locations were shelters.

There were a total of 258,728 person records data captured from shelters, soup kitchens, regularly scheduled mobile food vans, and targeted nonsheltered outdoor locations. Most of the data captured person records (90 percent) were from shelters, soup kitchens and regularly scheduled mobile food vans.

Almost all (99 percent) of the data captured person records had at least two or more data characteristics (name, sex, age and/or date of birth, Hispanic origin, and race).

Approximately nine out of ten persons enumerated (87 percent) completed the questionnaires with enough information that the questionnaire could be included in the unduplication process. That is, the questionnaire had a first and last name with combined fields containing at least three alphabetic characters and at least two person characteristics, one of which was *date of birth* or *age*. We were able to match and unduplicate 16,787 (6.5 percent) person records during data processing.

A total of 38,415 people completed a Be Counted form and marked the "No Address on April 1, 2000" box on that form or indicated they were homeless in the address section. Of these, we were able to match and unduplicate three percent to people we had enumerated during the Service-Based Enumeration operation. Exactly 35,121 people were added to the Service-Based Enumeration population as a result of the Be Counted Program.

A total of 283,898 people were tabulated in the Census 2000 as a result of the Service-Based Enumeration operation. The majority (65 percent) were enumerated at shelters while 27 percent of the people were enumerated at soup kitchens and regularly scheduled mobile food vans. Targeted nonsheltered outdoor locations accounted for eight percent of the people tabulated.

Recommendations:

The Service-Based Enumeration operation appears to be a successful method of including people without conventional housing in the census. A total of 283,898 people were tabulated in the Census 2000 as a result of the Service-Based Enumeration operation, most of whom would not have been counted without the SBE operation.

Nearly sixty percent (59.2 percent) of the emergency and transitional shelter population reported one or more races other than white. Therefore, we strongly recommend that the Census Bureau continue supporting Service-Based Enumeration for the 2010 Census to reduce the differential undercount.

1. BACKGROUND

This evaluation provides an operational assessment of the Service-Based Enumeration (SBE) for Census 2000. The goal of Service-Based Enumeration is to provide people without conventional housing an opportunity to be included in the census. It is important to note that the Census 2000 count of the Service-Based Enumeration population does not represent a complete count of people experiencing homelessness.

1.1 History of the Service-Based Enumeration in the Decennial Census

1980 Census

The 1980 Census included homeless and highly transient people in two operations similar to the Census 2000 Service-Based Enumeration.

The Census Bureau conducted a one-night operation called Mission Night to enumerate people around midnight in shelters, low-cost transient quarters, all night movie houses, bus and railroad stations and local jails. This operation did not target people living on the streets or in open public places, and the 1980 Census had no procedures specifically designed to count such persons.

During the summer of 1980 we conducted a daytime operation called “Casual Count” in selected large central cities. Enumerators interviewed people in pool halls, food stamp centers, employment offices, welfare offices, and designated street corners. Enumerators asked people aged 15 years or older if they had a usual residence outside of the city; if they said “yes” the interview was ended. If they said they did not, enumerators asked if they had been counted in the 1980 Census; if they said “no” they were asked to fill out a census form.

1990 Census

We conducted a one-night shelter and street enumeration (S-Night) in the 1990 Census to include people not covered by regular census procedures.

- The **shelter phase** took place on March 20, 1990 from 6:00 p.m. until midnight. We enumerated people in shelters pre-identified by local governments as places where homeless people stayed.
- The **street phase** occurred on March 21, 1990 from 2 a.m. to 4 a.m. We enumerated people at pre-identified street locations, public facilities such as bus depots, train stations, all night restaurants, parks, and vacant lots, as well as other places where homeless people may have spent the night. We also counted people leaving abandoned buildings from 4 a.m. until 8 a.m. on March 21, 1990 as part of the street phase.

1995 Census Test

The 1995 Census Test was the first attempt since the 1990 Census at a fundamentally different approach to enumerating people with no usual residence. The Census Bureau developed a specialized operation to enumerate selected service locations that serve people without conventional housing. We anticipated that by enumerating people where they receive services, we had additional opportunities that insured us contact with the target population.

In the 1995 Census Test, we enumerated people at shelters on the evening of March 6, 1995 using an Individual Census Report (ICR). On March 7, 1995, we enumerated people at soup kitchens during the meal serving the largest number of clients. We enumerated people at the soup kitchens on an Individual Census Questionnaire (ICQ).

Soup kitchen respondents who indicated they had a usual residence were counted at the address they provided. We tabulated respondents who did not provide an address at the soup kitchen where they were enumerated.

We also distributed Be Counted questionnaires at service locations that were not identified as enumeration sites, such as drop-in centers for the homeless and clothing distribution centers. If a Be Counted questionnaire was marked to indicate that the respondent did not have an address on Census Day, the person was included in the census as part of the SBE universe.

Results from the 1995 Census Test indicated the SBE methodology was feasible within the census environment, but some refinements were needed, such as simplified procedures and improved enumerator training.

Small Scale Test

To further refine the methodology, we conducted a small-scale test of procedures in September 1996 in New York City. The goals of the test were to simplify the procedures and adapt them to the enumeration of people visiting regularly scheduled mobile food vans.

Census 2000 Dress Rehearsal

In the Census 2000 Dress Rehearsal we expanded the list of enumeration sites to include targeted nonsheltered outdoor locations, such as outdoor encampments where groups of people with no usual residence live and/or stay and who do not usually receive services provided for the homeless.

The Census Bureau also distributed Be Counted forms (BCFs) at targeted locations in the Census 2000 Dress Rehearsal. People who indicated on a BCF that they had no address were included in the SBE universe.

1.2 Census 2000 Service-Based Enumeration Site Definitions

Census 2000 included the following SBE enumeration sites:

- **Emergency shelters** include shelters that operate on a first-come, first-served basis where people must leave in the morning and have no guaranteed beds for the next night or where people are guaranteed they have a bed for a short period of time (even if they leave the building every day). These also include facilities that provide temporary shelter during extremely cold weather (such as churches) and facilities that provide emergency shelter for abused women.
- **Transitional shelters** include shelters providing a maximum stay for clients of up to two years and offering support services to promote self-sufficiency and to help clients obtain permanent housing.
- **Shelters for children who are runaways, neglected, or without housing** include shelters and group homes that provide temporary sleeping facilities for juveniles.
- **Hotels, motels, or other facilities** include establishments for which vouchers are provided or that operate under contract to provide shelter to people without housing.
- **Soup kitchens** include soup kitchens, food lines, and programs that distribute prepared breakfasts, lunches, or dinners. These programs may be organized as food service lines, serving bag or box lunches, or tables where people are seated, then served by program personnel. These programs may or may not have a place for clients to sit and eat the meal.
- **Regularly scheduled mobile food vans** include mobile food vans that are regularly scheduled to visit designated street locations for the primary purpose of providing food to people without housing.
- **Targeted nonsheltered outdoor locations** were geographically identifiable outdoor locations open to the elements where people who do not usually receive services at soup kitchens, shelters, and regularly scheduled mobile food vans were living in March 2000 without paying to stay there. These sites were identified by local government officials and local advocates. These sites needed to have a specific location description that allowed a census enumeration team to physically locate the site; for example, "the North Bridge at the corner of East Drive and First Street" or "the 700 block of South Street behind the old warehouse." This excludes pay-for-use campgrounds.

1.3 Census 2000 Enumeration Procedures

We visited SBE locations several weeks before the enumeration. During the advance visit, we collected information such as how many people were expected to be housed at each shelter, how many meals were served, which meal served the most people at each soup kitchen, and how many people received services at each regularly schedule mobile food van site.

1.3.1 Pre-Enumeration Procedures

Prior to the enumeration, we instructed enumerators to:

- check their materials
- complete the Group Quarters (GQ) Listing Sheet
- prepare the questionnaires by copying the GQ identification number from GQ Listing Sheet onto the back of each questionnaire

1.3.2 Enumeration Procedures

For the most part, the enumeration procedures were similar for all SBE locations. One or more teams were assigned to each location depending on the expected number of clients served. A separate ICR/ICQ was used to enumerate each person, including children.

Upon arriving at each SBE location, we instructed enumerators to:

- introduce themselves to the contact person
- explain how the enumeration would be conducted
- ask the contact person to make an announcement encouraging participation in the census enumeration

Shelters

We conducted a complete enumeration of shelters on March 27, 2000. A shelter enumeration team consisted of two enumerators.

We instructed enumerators to:

- list each person on the GQ Listing Sheet annotating their sex and race (which could be used as last resort information)
- distribute an enumeration packet containing an ICR, a privacy act notice, a pencil, and an envelope
- give every sixth person a long form ICR to complete
- convert refusals if possible

Respondents were asked to complete the questionnaire and return it to the enumerators in the sealed envelope.

Soup Kitchens

On March 28, 2000 we conducted a complete enumeration of soup kitchens during the meal that served the largest number of clients. Soup kitchen enumeration teams consisted of seven enumerators.

We instructed five of the seven enumerators to:

- divide the lines into segments
- list each person on a GQ Listing Sheet annotating their sex and race (which could be used as last resort information)
- hand the respondent a privacy act notice
- conduct a personal interview using the short form ICQ
- convert refusals if possible
- note last resort data (sex and race) on the ICQ if they were unable to complete the interview

Two members of each enumeration team completed long-form ICQ personal interviews for every sixth person.

Regularly Scheduled Mobile Food Vans

On the evening of March 28, 2000 we conducted a complete enumeration of regularly scheduled mobile food vans. The enumeration teams had seven members and followed the regularly scheduled mobile food vans from site to site. No long-form questionnaires were completed at these facilities.

We instructed enumerators to:

- list each person on the GQ listing sheet annotating their sex and race (which could be used as last resort information)
- hand the respondent a privacy act notice
- conduct the personal interview using the short form ICQ
- convert refusals if possible
- note last resort data on the ICQ if they were unable to complete the interview

Targeted Nonsheltered Outdoor Locations

We also conducted a complete enumeration at targeted nonsheltered outdoor locations on March 29, 2000. Through partnerships, targeted nonsheltered outdoor locations should have had a contact person or gatekeeper who was familiar with the location to accompany a team of two to three enumerators during the enumeration. No long-form questionnaires were completed at these sites.

Upon arriving at each targeted nonsheltered outdoor location, we instructed enumerators to:

- introduce themselves to the respondent
- hand the respondent a privacy act notice
- conduct the personal interview using the short form ICR
- convert refusals if possible
- note last resort data on the ICR if they were unable to complete the interview

1.3.3 Post-Enumeration Procedures

After the enumeration, we instructed enumerators to:

- check forms for accuracy and completeness
- report time and expenses
- sign the checklist of tasks they were required to complete and give it to the team leader
- place enumeration materials in a messenger envelope and give it to the team leader

1.3.4 Be Counted Forms

The Census Bureau made BCFs available at various public sites in the Census 2000. People who completed a BCF and indicated that they had no address by marking the "No Address on April 1, 2000" box on the form or indicated in the address section they were homeless were included in the SBE universe.

1.3.5 Number of Service-Based Enumeration Locations

The total number of SBE locations is somewhat lower than the December 1999 report for the Interagency Council on the Homeless, Homelessness: Programs and the People They Serve. The differences can be explained by the following aspects of the SBE operation:

- the SBE operation took place in late March when some shelters that open only during extremely cold weather have already closed
- Soup kitchens and regularly scheduled mobile food vans that did not operate on Tuesday, March 28 were excluded from the operation (i.e. a soup kitchen or regularly scheduled mobile food vans that is open only on weekends)

1.3.6 Service-Based Enumeration Multiplicity Estimation

Because the SBE only accounted for people at these facilities on the day of enumeration, we planned to apply multiplicity estimation to account for people who use these facilities but did not use them on the day of the SBE. Due to data quality concerns a decision was made not to correct the count of persons actually enumerated in SBE using multiplicity estimation.

1.4 Census 2000 Questionnaire Processing

SBE data captured records were included in the census only if they contained two or more of the following data characteristics; name, sex, age and/or date of birth, Hispanic origin, and race.

Persons enumerated on a BCF were included in the SBE universe if they met the following criteria:

- (1) First and last name (combined fields contained at least 3 alphabetic characters)
- (2) The “No address on April 1, 2000” box was marked and a city and/or county and state was provided; *or* the address was a searchable Usual Home Elsewhere (UHE) that matched to a shelter address; *or* the word “homeless” was conveyed in the address field of the BCF and the city and/or county and state was provided.

1.4.1 Unduplication of Questionnaires

Since the SBE operation was conducted over a three day period, it was possible to enumerate people more than once. For example, if someone used a shelter on March 27 and received services at one or more soup kitchens and/or mobile food vans on March 28 they may have been enumerated at each of these services. Also it was possible for persons who received services to fill out a BCF. An attempt was made to unduplicate the SBE enumerations and count each person only once in the census.

In order to be included in the unduplication process, person records were required to contain the following information:

- (1) First and last name (combined fields must contain at least 3 alphabetic characters)
- (2) At least two person characteristics, one of which is *date of birth* or *age*

All persons who met the requirements shown above in Section 1.4 were counted in the Census 2000, irrespective of whether or not their records contained sufficient information for unduplication.

The unduplication of people was performed using computer matching software developed by the Statistical Research Division of the Census Bureau. Person records were unduplicated within the Local Census Office (LCO). As part of the unduplication process, individual demographic characteristics were assigned a weight based on whether they agreed or disagreed.

Agreement weights had positive values and disagreement weights had negative values. Variables that were missing from one of the two person records involved in the comparison were assigned the weight of zero. A final weight assigned to the pair of person records was the sum of the agreement and disagreement weights for each matching characteristic. Two or more person records were considered a match if the cumulative weight was above 0.95. The table below presents the variables and weights used for the SBE unduplication:

Variable	Comparison	Agreement Weight	Disagreement Weight
First Name	string comparator	0.3864	- 0.2121
Last Name	string comparator	0.3601	- 0.2184
Middle Initial	exact match	0.6896	- 0.6208
Sex	exact match	0.6994	- 0.6328
Race	exact match	0.5250	- 0.4750
Hispanic Origin	exact match	0.5250	- 0.4750
Month of Birth	exact match	0.4819	- 0.4274
Day of Birth	exact match	0.4819	- 0.4274
Year of Birth	range	0.5853	- 0.4513
Relationship	exact match	0.5013	- 0.4988

The record for the primary source within each pair was included in the census. If a respondent completed a questionnaire at a shelter on March 27 and at one or more soup kitchens, regularly scheduled mobile food vans, and/or a targeted nonsheltered outdoor location on March 28 or March 29, the shelter questionnaire was the primary data source. If a respondent was not enumerated at a shelter, but completed questionnaires at more than one soup kitchen, regularly scheduled mobile food van, and/or targeted nonsheltered location on March 28 or March 29, the questionnaire with the most complete data became the primary source.

1.4.2 Allocation of Be Counted Forms

People on Be Counted Forms who indicated they did not have an address on April 1, 2000 and they did not match to a SBE respondent were proportionately allocated for tabulation purposes to emergency shelters and soup kitchens within the LCO of the city and/or county and state provided on the BCF. If there were no emergency shelters or soup kitchens in the LCO, then the BCF was allocated to *any* GQ location within the LCO.

1.4.3 Determining the SBE Population Size

The IGQNPS variable on the Hundred Percent Census Unedited File (HCUF) is the number of person records selected at this GQ ID from SBE processing. The Decennial Systems Contracts and Management Office (DSCMO) determined the final SBE GQ population by subtracting the number of SBE duplicate person records from this variable and adding the total BCF allocated person records.

As part of the preparation of the Hundred Percent Census Edited File (HCEF), DSCMO performed an automated edit of the ages in each SBE GQ. If age was reported for twenty percent or more of a SBE GQ's residents, the SBE GQ was eligible to have its GQ type reassigned on the HCEF. Reassignment of the GQ type for a SBE GQ was based on the median age of the residents. For example, if the median age for a soup kitchen is between the range of 0 - 70, the GQ type will remain the same, however if the median age is greater than 70, the SBE GQ type would be reassigned to that of a nursing home GQ. The GQ type was reassigned for a total of 194 SBE GQs.

2. METHODS

This section describes the methodology used for this operational assessment.

2.1 Sources of Data

We obtained data for this assessment from two different sources.

- DSCMO provided Decennial Statistical Studies Division with a file extract containing all SBE data captured records as well as BCFs of persons who indicated that they did not have a address on April 1, 2000 for the fifty states, the District of Columbia and Puerto Rico.

The file contained the following variables:

- Geography (including state, county, and LCO)
 - GQ Type Code
 - GQ ID Number
 - Questionnaire Form Type
 - Person Name (first, last, and middle initial)
 - Person Characteristics (sex, date of birth, Hispanic origin, and race)
 - SBE Unduplication Results
 - Be Counted Form Allocation Results
- The Hundred Percent Census Edited File contains information on the characteristics of the addresses included in the census.

2.2 Examination of Duplicate Questionnaires

A review of the name fields showed several entries that were not names occurred repeatedly. In many instances records with these commonly occurring entries were identified as a duplicate enumeration.

We sorted the data file provided by DSCMO by last name variable and conducted a clerical review to identify records that may have been erroneously identified as duplicates. Last name was the only criterion used to find erroneous matches. Common entries in the name field and variations of those names that may have caused records to be erroneously identified as duplicates are shown below.

AA	FOUR	SEVEN
ANONYMOUS	NAME	SHELTER
ASLEEP	NINE	SIX
CLIENT	OBSERVE	SOUP KITCHEN
DINER	ONE	SUBJECT
DOEA-Z	PERSON	TEEN
ELEVEN	REFUSE	TWO
EIGHT	RESIDENT	THREE
FIVE	RESPONDENT	UNKNOWN

2.3 Quality Assurance Procedures

Quality assurance procedures were applied to the design, implementation, analysis, and preparation of this report. The procedures encompassed methodology, specification of project procedures and software, computer system design and review, development of clerical and computer procedures, and data analysis and report writing. A description of the procedures used is provided in the ‘Census 2000 Evaluation Program Quality Assurance Process.’

3. LIMITATIONS

A portion of the questionnaires completed at SBE locations were not data captured because the questionnaires could not be identified with a specific SBE¹. Questionnaires not captured would affect the population counts for SBE locations but there is no information about the quantity or source of these missing questionnaires.

We accepted a Usual Home Elsewhere (UHE) address from people enumerated at soup kitchens and regularly scheduled mobile food vans. Exactly 24,846 person records were geocoded to a housing unit. Of these, 9,618 person records were selected by Primary Selection Algorithm and potentially added to the Census 2000 because of SBE². The data available to this evaluation do not include information about UHE addresses reported by SBE respondents.

¹For details see Hogan 2001.

²More than one response to the census may be received for a given address. It is the job of the Primary Selection Algorithm (PSA) to analyze these responses and select from among them the records that it deems most likely to represent the actual census household.

The PSA is applied to the defined subset of response records that have been assigned housing unit (HU) IDs. The purpose of the PSA is to select return and person records that may be included on census files defined by subsequent processes.

4. RESULTS

4.1 How many service-based enumeration locations were there?

Table 1 provides the number of service locations by service type. There was a total of 14,817 SBE enumeration sites visited. More than one-half (51 percent) of the locations were shelters.

There were a total of 428 SBE locations with no data capture records.

Service Locations by Service Type (Table 1)

Service Type	Number	Percent
Total Number of SBE Locations	14,817	100
Shelters	7,571	51
Soup Kitchens and Regularly Scheduled Mobile Food Vans	2,223	15
Targeted Nonsheltered Outdoor Locations	5,023	34

Data Source: HCUF

4.2 How many person records were data captured at each service location type?

Table 2 provides the number of person records data captured at all of the service location types. There were a total of 258,728 SBE questionnaires data captured. It is important to note that this is the number of questionnaires completed prior to the unduplication process and does not include UHE cases removed from the SBE universe.

Most of the data captured person records (90 percent) were from shelters, soup kitchens and regularly scheduled mobile food vans.

Person Records Data Captured by Type of Service Location (Table 2)

Service Type	Number	Percent
Total Number of Data Captured Person Records	258,728	100
Person Records Data Captured at Shelters	161,459	62
Person Records Data Captured at Soup Kitchens and Regularly Scheduled Mobile Food Vans	71,632	28
Person Records Data Captured at Targeted Nonsheltered Outdoor Locations	25,637	10

Data Source: DSCMO Extract

4.3 How complete were the data collected during the service-based enumeration operation?

Table 3a shows the number of data captured person records that were data defined and those that were non-data defined by service type. SBE data captured records were considered data defined if they contained two or more of the following data characteristics; name, sex, age and/or date of birth, Hispanic origin, and race.

Almost all (99 percent) of the data captured person records had at least two or more data characteristics. Shelters had the largest percentage (75 percent) of data captured person records that contained all five data characteristics. It is interesting to note that shelters had the only respondent filled questionnaires.

Approximately one percent (3,051) of all data captured person records had insufficient data to be considered data defined. Regularly scheduled mobile food vans had the lowest occurrence (0.3 percent) of non-data defined person records, while the other service location types had between one and two percent non-data defined records.

Nearly three-fourths (72 percent) of the SBE person records had all five data characteristics completed.

Data Captured Person Records Completeness by Type of Service Location (Table 3a)

	Shelters	Soup Kitchens and Regularly Scheduled Mobile Food Vans	Targeted Nonsheltered Outdoor Locations	Total
Total Data Captured Person Records	161,459	71,632	25,637	258,728
Non-data Defined Person Records (Percent of Total)	1,596 (1.0)	972 (1.4)	483 (1.9)	3,051 (1.2)
➤ No Data Characteristics (Percent of Non-data Defined)	622 (0.4)	538 (0.8)	193 (0.8)	1,353 (0.5)
➤ One Data Characteristic (Percent of Non-data Defined)	974 (0.6)	434 (0.6)	290 (1.1)	1,698 (0.7)
Data Defined Person Records (Percent of Total)	159,863 (99.0)	70,660 (98.6)	25,154 (98.1)	255,677 (98.8)
➤ Two Data Characteristics (Percent of Data Defined)	1,815 (1.1)	634 (0.9)	416 (1.6)	2,865 (1.1)
➤ Three Data Characteristics (Percent of Data Defined)	7,079 (4.4)	2,927 (4.1)	2,649 (10.3)	12,655 (4.9)
➤ Four Data Characteristics (Percent of Data Defined)	30,278 (18.8)	17,052 (23.8)	7,400 (28.9)	54,730 (21.2)
➤ Five Data Characteristics (Percent of Data Defined)	120,691 (74.8)	50,047 (70.8)	14,689 (57.3)	185,427 (71.7)

Data Source: DSCMO Extract

Table 3b shows the rate of nonresponse for 100 percent data items on all SBE forms at a national level. The distribution of the item nonresponse rates was similar within each type of SBE location with the exceptions noted below.

As expected, targeted nonsheltered outdoor locations had the highest rate of nonresponse to the name fields. Eighteen percent of the respondents did not provide a first and last name. This is much higher than the overall nonresponse rate of five percent for this item.

The Hispanic origin nonresponse rate for emergency shelters is the lowest (15 percent) among the SBE location types. The overall nonresponse rate for this item is 17 percent. This may be a result of the ICRs being distributed to the respondents to complete themselves whereas the enumerators conducted personal interviews at the other SBE location types.

Regularly scheduled mobile food vans could easily be described as the most difficult to enumerate of the SBE locations and yet the nonresponse rates of data items (with the exception of Hispanic origin) were similar to those for the emergency shelters and soup kitchens and they also had the lowest rate of non-data defined records.

Nonresponse to 100 percent Items for Service-Based Enumeration Locations (Table 3b)

	Number	Percent
Last Name Only	3,367	1
First Name Only	15,403	6
Both First and Last Name	13,367	5
Sex	8,501	3
Age	18,462	7
Date of Birth	10,493	4
Hispanic Origin	43,462	17
Race	26,435	10

Data Source: DSCMO Extract

4.4 How many person records were unduplicated during data processing?

Table 4a provides the results of the unduplication of SBE person records at the national level. The first row represents the total number of data captured person records. The second row provides the number of person records that matched to another census person record and were **not counted** in the census. The third row indicates the total number of unique (unduplicated) people which were included in the Census 2000 results. The fourth row indicates the number of person records with sufficient data for matching. The fifth row represents the number of person records with insufficient data for matching.

As noted previously, all persons with sufficient data to be included in the Census 2000 were counted regardless of whether their records contained sufficient information for unduplication.

Approximately nine out of ten persons enumerated (87 percent) completed the questionnaires with enough information for the questionnaire to be included in the unduplication process. That is, they had a first and last name with combined fields containing at least three alphabetic characters and at least two person characteristics, one of which was *date of birth* or *age*.

Results of the SBE Unduplication of Data Captured Person Records (Table 4a)

	Number	Percent
Total Data Captured Person Records from SBE Locations	258,728	100
Data Captured Person Records Matched and Not Counted	16,787	6
Data Captured Person Records Counted in the Census	241,941	94
▶ Data Captured Person Records with Sufficient Data for Unduplication	209,488	87
▶ Data Captured Person Records with Insufficient Data for Unduplication	32,453	13

Data Source: DSCMO Extract

Table 4b shows the results of the erroneous unduplication of SBE data captured person records by service type.

As discussed in Section 2.2, we noted numerous records that were erroneously identified as duplicates. Of the 16,787 person records unduplicated during data processing, 2,410 (14 percent) were most likely erroneously unduplicated. This is 0.9 percent of the SBE data captured person records.

Targeted nonsheltered outdoor locations had the highest percentage (39 percent) of erroneous duplicates.

Erroneous Duplicates by Type of Service Location (Table 4b)

Service Type	Number of Duplicates	Erroneous Duplicates		
		Number	Percent of Duplicates	Percent of Data Captured Person Records
Total	16,787	2,410	14.4	0.9
Shelters	5,614	259	4.6	0.2
Soup Kitchens and Regularly Scheduled Mobile Food Vans	8,134	967	71.9	2.1
Targeted Nonsheltered Outdoor Locations	3,039	1,184	39.0	4.6

Data Source: DSCMO Extract

4.5 How many people were enumerated on a Be Counted Form?

Table 5 provides the number of people who indicated they did not have an address on April 1, 2000 on a BCF. The first row represents the total number of people who indicated that they did not have an address on April 1, 2000 on a BCF. The second row indicates the number of person records received that did not contain a first and last name, or a city and state as required and were **not counted** in the census. The third row represents the number of person records that matched to another SBE person record and were **not counted** in the census. The fourth and fifth rows provide the total number of unique (unduplicated) people who were included in the Census 2000 results and were allocated to service locations and other GQs when necessary.

We were able to match a total of 1,186 (three percent) of the people who submitted a BCF to people enumerated during the SBE operation. Through clerical matching we determined only one BCF had been erroneously identified as a duplicate.

A total of 35,121 people (13 percent) of SBE people tabulated in the census were added to the SBE universe and therefore added to the Census 2000 as a result of the Be Counted Program.

People without an Address on April 1, 2000 Enumerated on a Be Counted Form (Table 5)

	Number	Percent
Total Number People on a BCF without an Address on April 1, 2000	38,415	100
BCF with Insufficient Data for Further Processing - (Not Counted in the Census)	2,108	5
BCFs Matched to SBE Enumerated Person - (Not Counted in the Census)	1,186	3
BCFs Allocated to a SBE Location	31,994	83
BCFs Allocated to a GQ	3,127	8

Data Source: DSCMO Extract

4.6 How many people were tabulated in the SBE operation?

Table 6 provides the total number of people tabulated in the Census 2000 by service type. These counts include persons who were enumerated on a BCF and allocated to a SBE GQ, persons who were imputed into SBE GQs as well as the results of the edits performed by DSCMO as described in Section 1.4.3.

The majority of people (92 percent) were tabulated at shelters, soup kitchens, and regularly scheduled mobile food vans.

People from the SBE Operation in Census 2000 by Type of Service Location (Table 6)

Service Type	Number	Percent
Total Number of People from the SBE operation Tabulated in Census 2000	283,898	100
People Tabulated at Emergency Shelters	184,008	65
People Tabulated at Soup Kitchens and Regularly Scheduled Mobile Food Vans	76,465	27
People Tabulated at Targeted Nonsheltered Outdoor Locations	23,425	8

Data Source: HCEF

Nearly sixty percent (59.2 percent) of the emergency and transitional shelter population³ reported one or more races other than white.

³For a basic overview of population characteristics for the people tabulated at emergency and transitional shelters see Smith 2001.

5. RECOMMENDATIONS

The service-based enumeration operation appears to be a successful method of including people without conventional housing in the census. A total of 283,898 people were tabulated in the Census 2000 as a result of the Service-Based Enumeration operation, most of whom would not have been counted without the SBE operation.

Nearly sixty percent (59.2 percent) of the emergency and transitional shelter population reported one or more races other than white. Therefore, we strongly recommend that the Census Bureau continue supporting the SBE operation for the 2010 Census.

Census 2000 was the first attempt at enumerating people at soup kitchens and regularly scheduled mobile food vans. At least 76,000 people were added to the census and would have been missed if these service locations were not included in Census 2000.

Additionally, almost 25,000 people were enumerated at soup kitchens and regularly scheduled mobile food vans, but were tabulated at their usual place of residence as reported on the questionnaire. These people were included in Census 2000 because of the service-based enumeration. This further supports the need to continue research on enumerating the population at service locations.

Approximately 23,000 people were included in Census 2000 that may not have used any services included in the census. These people were included in Census 2000 because they were enumerated at targeted non-sheltered outdoor locations. Research should continue on methods for enumerating people at targeted non-sheltered outdoor locations.

A total of 35,121 people were added to the SBE universe and therefore added to the Census 2000 as a result of the Be Counted Program. This program ensured that these persons were counted in the census.

Some of the SBE questionnaires were not used because the enumerators did not put the GQ identification number on the questionnaires as instructed. The process of identifying each questionnaire with the appropriate GQ needs to be improved.

We made erroneous unduplications because the enumerator wrote something other than a name, such as "AA", "CLIENT", etc. in the name fields. While we can emphasize in the training that the enumerator should only write a name in the name fields we also need to research ways to improve the unduplication process given the likelihood that something other than name could be written.

References

Hogan, Howard (2001), "Specifications for Setting the Official Population for Each Group Quarters in the Special Place/Group Quarters Universe," Internal Census Bureau memorandum, DSSD Census 2000 Procedures & Operations Memorandum Series, Chapter 0-14.

McNally, Tracey (2000), "Specification for the Census 2000 Unduplication of the Service-Based Enumeration Universe," Internal Census Bureau memorandum, DSSD Census 2000 Procedures & Operations Memorandum Series, Chapter 0-6R(Revised).

McNally, Tracey (1999), "Service-Based Enumeration Coverage Yield," Internal Census Bureau memorandum, Census 2000 Dress Rehearsal Evaluation Memorandum Series, Chapter D-1.

McNally, Tracey and Annetta Clark (1995), "Observation of the Service-Based Enumeration Operations in Oakland, California," Internal Census Bureau memorandum, 1995 DSSD Census Test Memorandum Series, Chapter K-4.

Barrett, Diane, Irwin Anolik, and Florence Abramson (1992), "The 1990 Census Shelter and Street Night Enumeration," Internal Census Bureau memorandum, 1990 DSSD REX Memorandum Series, Chapter P-11.

Cresce, Arthur (2000), "Census 2000 100% Imputation Specification," Internal Census Bureau Memorandum, DRAFT.

Smith, Annetta C. and Denise I Smith, (2001) U.S. Census Bureau, Census Special Reports, Series CENSR/01-2, Emergency and Transitional Shelter Population: 2000, United States Government Printing Office, Washington, DC.

Kostanich, Donna (2001), "Census 2000 - Service Based Enumeration Multiplicity Estimation," Internal Census Bureau memorandum, DSSD Census 2000 Procedures and Operations Memorandum Series B-15*.

The Urban Institute (1999), "Homelessness: Programs and the People They Serve," Findings of the National Survey of Homeless Assistance Providers and Clients Technical Report for the Interagency Council on the Homeless.

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